REMARKS/ARGUMENTS

No claims are amended. Claims 47-50 are newly added. Claims 1-3, 5-10, 12-16, and 27-50 are now pending in the application. (Claims 4, 11, and 17-26 were previously canceled.) Applicants respectfully request reconsideration and reexamination of the application as amended.

Initially, Applicants acknowledge with appreciation the Examiner's indication that claims 1-3, 5-10, and 12-16 are allowable and claims 29, 30, 37, 38, and 41 contain allowable subject matter. As discussed below, Applicants assert that all pending claims (including the withdrawn claims) are in condition for allowance.

Claims 27, 28, 31, 35, 36, 39, 40, 45, and 46 were rejected under 35 USC § 102(b) as anticipated by US Patent No. 5,124,639 to Carlin et al. ("Carlin"). Applicants respectfully traverse this rejection.

Independent claim 27 includes "an energy transmissive element disposed to transmit energy to said probe card ***to counteract thermally induced bowing of said probe card***." Carlin does not describe the heating element 48 as counteracting thermally induced bowing of a probe card 12. Rather, heating element 48 is configured to heat the probes 22 to the same temperature as the die 24 being tested and maintain the probes 22 at that temperature. (Carlin col. 3, lines 35-38; col. 5, lines 33-35; col. 6, lines 16-21 and 65-67; col. 7, lines 14-23.)

According to Carlin, a temperature gradient between the die 24 and the probe card 12 causes temperature changes of both the probe card 12 and the probes 22, each of which causes a problem: (1) the temperature change of the probe card 12 may warp the probe card, and (2) the temperature change of the probes 22 causes the probes 22 to move out of alignment. (Carlin col. 2, lines4-6 and 9-14.) Carlin's invention address only the second of those problems—temperature change of the probes 22, which causes the probes 22 to move out of alignment—which Carlin identifies as the more significant of the two problems. (Carlin col. 2, lines 14-17.) Indeed, Carlin states that warping of the probe card 12 may not occur or may be too insignificant to matter. (Carlin col. 2, lines 14-16.) It is not surprising, therefore, that Carlin repeatedly describes the heating element 48 as maintaining the probes 22 at a constant temperature (see, e.g., Carlin col. 3, lines 35-38; col. 5, lines 33-35; col. 6, lines 16-21 and lines 65-67; and col. 7, lines 14-23) but never describes the heating element 48 as counteracting warping of the probe card 12.

Thus, Carlin's heating element 48 does not counteract warping of the probe card 12. Carlin therefore does not teach or suggest "an energy transmissive element disposed to transmit energy to said probe card ***to counteract thermally induced bowing of said probe card.***" Consequently, claim 27 patentably distinguishes over Carlin.

Claims 28, 31, and 46-48 depend from claim 27 and therefore also patentably distinguish over Carlin. Moreover, those claims recite additional features that further distinguish over Carlin. For example, claim 28 states that the "energy transmissive element is disposed to affect a temperature on said device side of said probe card." As discussed above, Carlin describes the heating element 48 as affecting the temperature only of the probes 22. As another example, claim 47 describes "said probe card [as comprising] a device surface that faces said electronic device to be tested and a second surface opposite said device surface that faces away from said electronic device to be tested," and claim 47 further states that "said energy transmissive element is configured to adjust selectively a temperature at at least one of said device surface and said second surface to reduce a difference between a temperature at said device surface and a temperature at said second surface, whereby said energy transmissive element counteracts thermally induced bowing of said probe card." Carlin's heating element 48 affects only the temperature of the probes 22 but does not affect the temperatures of opposing surfaces of the probe card 12. Claims 27, 28, 31, and 46-48 thus further distinguish over Carlin.

Independent claim 35 includes "a probe card" that has "a device side that faces said electronic device to be tested and a second side opposite said device side." Claim 35 further includes "means for reducing a temperature gradient ***between said device side of said probe card and said second side of said probe card.***" Carlin never mentions a temperature gradient between one side of the probe card 12 (e.g., the side with probes 22) and the opposite side (e.g., the side with traces 14). Rather, the only temperature gradient Carlin mentions is a temperature gradient between the die 24 and the probe card 12. (Carlin col. 2, lines 4-9 and 32-35.) It is not surprising that the heating element 48 is not configured to reduce a temperature gradient that is never mentioned in Carlin. Indeed, as discussed above, the only function of the heating element 48 described in Carlin is maintaining the probes 22 at constant temperature that is equal to the temperature of the die 24. (Carlin col. 3, lines 35-38; col. 5, lines 33-35; col. 6, lines 16-21 and 65-67; and col. 7, lines 14-23.)

Thus, Carlin does not teach or suggest "means for reducing a temperature gradient ***between said device side of said probe card and said second side of said probe card.***" Claim 35 therefore patentably distinguishes over Carlin.

Claims 36, 39, 40, 45, 49, and 50 depend from claim 35 and therefore also patentably distinguish over Carlin. Moreover, those claims recite additional features that further distinguish over Carlin.

For example, claim 36 states that "said means for reducing a temperature gradient is disposed on at least one of said device side and said second side of said probe card." Carlin's heating element 48 is not disposed on the probe card 12 much less on at least one of a side of the probe card 12 that faces the die 24 or an opposite side of the probe card 12 (e.g., the side with traces 14). Rather, the heating element 48 of Carlin is disposed in a slot 46 in a probe ring 40. Claim 36 thus further distinguishes over Carlin.

As another example, claim 39 describes "said means for reducing a temperature gradient [as] configured to affect a temperature on said second side of said probe card." As discussed above, Carlin's heating element 48 affects a temperature of the probes 22—not the side of the probe card 12 having traces 14, as would be required to meet the features of claim 39. Claim 39 thus also further distinguishes over Carlin.

As yet another example, claim 49 describes "said means for reducing a temperature gradient [as] further selectively adjust[ing] a temperature at at least one of said device surface [of the probe card] and said second surface [of the probe card] to reduce a difference between a temperature at said device surface and a temperature at said second surface." Again, Carlin's heating element 48 affects only the temperature of the probes 22 but does not selectively adjust a temperature at at least one of two opposing surfaces of the probe card 12. Claim 48 therefore also further distinguishes over Carlin.

In view of the foregoing, Applicants submit that the all pending claims are allowable, including withdrawn claims 32-34 and 42-44, which should now be rejoined. If the Examiner believes that a discussion with Applicants' attorney would be helpful, the Examiner is invited to contact the undersigned at (801) 323-5934.

Respectfully submitted,

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